

What is claimed is:

1. A drive control apparatus for a vehicle having an accelerator pedal and a brake pedal both of which are operable by a driver of the vehicle, and a power source, the drive control apparatus comprising:

a vehicle speed measuring device which measures a vehicle speed;

a control operation switching device which places the drive control apparatus in an operating state upon receiving an operation from the driver;

a vehicle speed adjusting device which is placed in an operating state upon receiving a command from the control operation switching device, and which, during the operating state, automatically adjusts the vehicle speed measured by the vehicle speed measuring device, independently from driver's operations of the accelerator pedal and of the brake pedal, so that a target vehicle speed is achieved; and

a target vehicle speed changing device which changes the target vehicle speed depending on predetermined driver's operations of the accelerator pedal or of the brake pedal.

2. A drive control apparatus according to claim 1, further comprising:

a target vehicle speed setting device which sets the target vehicle speed depending on driver's operations of the accelerator pedal or of the brake pedal.

3. A drive control apparatus according to claim 1, further comprising:

an acceleration intention detecting device which determines that the driver intends to increase the target vehicle speed depending on a predetermined operation applied to the accelerator pedal by the driver; and

a vehicle speed setting device which sets a new target vehicle speed to be the vehicle speed measured by the vehicle speed measuring device when the driver's intention to increase the target vehicle speed is detected by the acceleration intention detecting device, and the vehicle speed is greater than the target vehicle speed.

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4. A drive control apparatus according to claim 3, wherein the predetermined operation applied to the accelerator pedal is defined such that a state, in which a controlled variable for the power source determined depending on a driver's operation applied to the accelerator pedal exceeds a controlled variable for the power source
10 determined by the vehicle speed adjusting device, continues for a predetermined period or longer, and then an amount of depression of the accelerator pedal begins to decrease.

5. A drive control apparatus according to claim 3, wherein the predetermined operation applied to the accelerator pedal is defined such that a controlled variable for the
15 power source determined depending on a driver's operation applied to the accelerator pedal exceeds a controlled variable for the power source determined by the vehicle speed adjusting device, by a predetermined amount, and then an amount of depression of the accelerator pedal begins to decrease.

20 6. A drive control apparatus according to claim 1, further comprising:
a deceleration intention detecting device which determines that the driver intends to increase the target vehicle speed; and
a vehicle speed setting device which sets a new target vehicle speed to be the vehicle speed measured by the vehicle speed measuring device when the driver's
25 intention to decrease the target vehicle speed is detected by the deceleration intention

detecting device, and the vehicle speed is less than the target vehicle speed.

7. A drive control apparatus according to claim 6, wherein the deceleration intention detecting device determines that the driver intends to decrease the target vehicle speed when a predetermined operation applied to the accelerator pedal, which is defined such that the accelerator pedal is placed in an OFF state for a predetermined period or longer, and then an amount of depression of the accelerator pedal begins to increase, is detected.

8. A drive control apparatus according to claim 6, wherein the deceleration intention detecting device determines that the driver intends to decrease the target vehicle speed when a predetermined operation applied to the accelerator pedal and to the brake pedal, which is defined such that the brake pedal is depressed for a predetermined period or longer, and then an amount of depression of the accelerator pedal begins to increase, is detected.

9. A drive control apparatus according to claim 6, wherein the deceleration intention detecting device determines that the driver intends to decrease the target vehicle speed when a predetermined operation applied to the accelerator pedal and to the brake pedal, which is defined such that an amount of depression of the brake pedal is maintained at a predetermined value or greater, and then an amount of depression of the accelerator pedal begins to increase, is detected.

10. A drive control apparatus according to claim 1, further comprising:
an accelerator pedal effort setting device which sets a depressing effort of the

accelerator pedal to be greater when the driver depresses the accelerator pedal to obtain a controlled variable for the power source, which is greater than that determined by the vehicle speed adjusting device, than when the vehicle speed adjusting device is not in an operating state.

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11. A drive control apparatus according to claim 1, further comprising:

an accelerator pedal effort adjusting device which sets a depressing effort of the accelerator pedal to be less when the driver depresses the accelerator pedal to obtain a controlled variable for the power source, which is less than or equal to that determined by the vehicle speed adjusting device, than when the vehicle speed adjusting device is not in an operating state.

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12. A drive control apparatus for a vehicle having an accelerator pedal and a brake pedal both of which are operable by a driver of the vehicle, and a power source, the drive control apparatus comprising:

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a vehicle speed measuring device which measures a vehicle speed;

an inter-vehicle distance measuring device which measures a distance between the vehicle and a preceding vehicle ahead;

a control operation switching device which places the drive control apparatus in an operating state upon receiving an operation from the driver;

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a vehicle speed adjusting device which is placed in an operating state upon receiving a command from the control operation switching device, and which, during the operating state, automatically adjusts the vehicle speed measured by the vehicle speed measuring device, independently from driver's operations of the accelerator pedal and of the brake pedal, so that a target inter-vehicle distance is achieved; and

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a target inter-vehicle distance changing device which changes the target inter-vehicle distance depending on predetermined driver's operations of the accelerator pedal or of the brake pedal.

5 13. A drive control apparatus according to claim 12, further comprising:

a target inter-vehicle distance setting device which sets the target inter-vehicle distance depending on the vehicle speed which is adjusted by driver's operations of the accelerator pedal or of the brake pedal.

10 14. A drive control apparatus according to claim 12, wherein the target inter-vehicle distance includes a distance which is required for the vehicle to stop behind the preceding vehicle without a rear-ending accident.

15 15. A drive control apparatus according to claim 12, wherein the target inter-vehicle distance includes a distance to be remained at a stop of the vehicle behind the preceding vehicle.

16. A drive control apparatus according to claim 12, further comprising:
an inter-vehicle distance decreasing intention detecting device which determines
20 that the driver intends to decrease the inter-vehicle distance depending on a predetermined driver's operation of the accelerator pedal; and

a target inter-vehicle distance decreasing device which decreases the target inter-vehicle distance depending on the inter-vehicle distance measured by the inter-vehicle distance measuring device and on the vehicle speed measured by the vehicle
25 speed measuring device when the driver's intention to decrease the target inter-vehicle

distance is detected by the inter-vehicle distance decreasing intention detecting device.

17. A drive control apparatus according to claim 12, further comprising:

an inter-vehicle distance decreasing intention detecting device which determines
5 that the driver intends to decrease the inter-vehicle distance depending on a
predetermined driver's operation of the accelerator pedal; and

a discrete target inter-vehicle distance setting device which sets the target
inter-vehicle distance to be one selected from various discrete values,

wherein the discrete target inter-vehicle distance setting device sets the target
10 inter-vehicle distance to be the smallest one among the various discrete values which are
greater than or equal to an inter-vehicle distance that is calculated depending on the
inter-vehicle distance measured by the inter-vehicle distance measuring device and on the
vehicle speed measured by the vehicle speed measuring device.

18. A drive control apparatus according to claim 16, wherein the predetermined
operation applied to the accelerator pedal is defined such that a state, in which a
controlled variable for the power source determined depending on a driver's operation
applied to the accelerator pedal exceeds a controlled variable for the power source
determined by the vehicle speed adjusting device, continues for a predetermined period
20 or longer, and then an amount of depression of the accelerator pedal begins to decrease.

19. A drive control apparatus according to claim 16, wherein the predetermined
operation applied to the accelerator pedal is defined such that a controlled variable for the
power source determined depending on a driver's operation applied to the accelerator
25 pedal exceeds a controlled variable for the power source determined by the vehicle speed

adjusting device, by a predetermined amount, and then an amount of depression of the accelerator pedal begins to decrease.

20. A drive control apparatus according to claim 12, further comprising:

5 an inter-vehicle distance increasing intention detecting device which determines that the driver intends to increase the inter-vehicle distance; and

a target inter-vehicle distance increasing device which increases the target inter-vehicle distance depending on the inter-vehicle distance measured by the inter-vehicle distance measuring device and on the vehicle speed measured by the vehicle speed measuring device when the driver's intention to increase the target inter-vehicle distance is detected by the inter-vehicle distance increasing intention detecting device.

21. A drive control apparatus according to claim 12, further comprising:

15 an inter-vehicle distance increasing intention detecting device which determines that the driver intends to increase the inter-vehicle distance depending on a predetermined driver's operation of the accelerator pedal; and

a discrete target inter-vehicle distance setting device which sets the target inter-vehicle distance to be one selected from various discrete values,

20 wherein the discrete target inter-vehicle distance setting device sets the target inter-vehicle distance to be the smallest one among the various discrete values which are greater than or equal to an inter-vehicle distance that is calculated depending on the inter-vehicle distance measured by the inter-vehicle distance measuring device and on the vehicle speed measured by the vehicle speed measuring device.

25 22. A drive control apparatus according to claim 20, wherein the inter-vehicle

distance increasing intention detecting device determines that the driver intends to increase the inter-vehicle distance when a predetermined operation applied to the accelerator pedal, which is defined such that the accelerator pedal is placed in an OFF state for a predetermined period or longer, and then an amount of depression of the
5 accelerator pedal begins to increase, is detected.

23. A drive control apparatus according to claim 20, wherein the inter-vehicle distance increasing intention detecting device determines that the driver intends to increase the inter-vehicle distance when a predetermined operation applied to the
10 accelerator pedal and to the brake pedal, which is defined such that the brake pedal is depressed for a predetermined period or longer, and then an amount of depression of the accelerator pedal begins to increase, is detected.

24. A drive control apparatus according to claim 20, wherein the inter-vehicle
15 distance increasing intention detecting device determines that the driver intends to increase the inter-vehicle distance when a predetermined operation applied to the accelerator pedal and to the brake pedal, which is defined such that an amount of depression of the brake pedal is maintained at a predetermined value or greater, and then an amount of depression of the accelerator pedal begins to increase, is detected.

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25. A drive control apparatus according to claim 12, further comprising:
an accelerator pedal effort setting device which sets a depressing effort of the accelerator pedal to be greater when the driver depresses the accelerator pedal to obtain a controlled variable for the power source, which is greater than that determined by the
25 vehicle speed adjusting device, than when the vehicle speed adjusting device is not in an

operating state.

26. A drive control apparatus according to claim 12, further comprising:

an accelerator pedal effort adjusting device which sets a depressing effort of the
5 . accelerator pedal to be less when the driver depresses the accelerator pedal to obtain a
controlled variable for the power source, which is less than or equal to that determined by
the vehicle speed adjusting device, than when the vehicle speed adjusting device is not in
an operating state.